Helmer Silt Loam 82-1D-0558 (821D-009-2)

Classification: coarse silty, mixed, frigid Andic Fragiochrept.

General Site Characteristics

Location: Benewah County, Idaho; approx. 1.5 miles east northeast of St. Maries, 2475 feet N. & 425 feet W. of SE corner of sec. 24, T. 46N., R. 2W.
Forest:
Area: Christmas Hills
Described By/Date: Soil Conservation Service personnel on June 21 , 1982
Parent Rock/Material: loess with an ash mantle
Habitat Type: western hemlock/clintonia; western hemlock, western red cedar, grand fir, Douglas fir, western larch, CLUN, LIBO, MIOB, GOOB, LOOC, wintergreen.
Topography: undulating

Landform: basalt terrace	Climate: frigid, udic
Weathering:	Precipitation:
Formation Name:	Erosion: none
Slope: 4 percent	Infiltration:
Aspect: 164 degrees	Permeability: very slow
Elevation: 3000 feet	Storage:
Soil Depth:	Drainage: mod. well
Eff. Rooting Depth:	Air Temp:
Litter Type:	Soil Temp at 20 inches:
Surface Rock: none	Salt/Alkal: none

Remarks: Classification assumes that this is not medial.

Pedon Description

O1 5-3 cm. Slightly decomposed needles, leaves, and twigs.

O2 3-0 cm. Well decomposed organic matter with 2 cm St. Helen's ash in upper part.

A 0-8 cm. Pale brown (10YR 6/3) silt loam, brown to dark brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak very fine and fine granular structure; loose, very friable, nonsticky and slightly plastic; slightly acid pH 6.1; many very fine and fine, few medium and coarse roots; many very fine and fine, few medium tubular pores; no gravels; clear wavy boundary.

Bs 8-36 cm. Light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; loose, very friable, nonsticky and slightly plastic; slightly acid pH 6.4; common very fine, fine, and medium, few coarse roots; common very fine and fine, few medium tubular pores; no gravels; clear wavy boundary.

Bw 36-48 cm. Pale brown (10YR 6/3) silt loam, brown to dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; slightly acid pH 6.3; weak very fine, fine, and medium roots; common very fine and fine, few medium tubular pores; very few thin clay films lining pores; no gravels; this horizon is not ashy; pockets of root masses and large old root channels between Bs and Bw approximately 12 cm in diameter; abrupt wavy boundary.

Bx/E 48-76 cm. Pale brown (10YR 6/3) and very pale brown (10YR 7/3) silt loam, brown to dark brown (10YR 4/3) and brown (10YR 5/3) moist; moderate medium and coarse angular blocky structure; very hard, very firm, slightly sticky and slightly plastic; strongly acid pH 5.1; common very fine, fine, and medium roots; common very fine and fine tubular pores; few thin clay films lining ped faces and pores; few thin silt coats white (10YR 8/2) on ped faces; weak fine manganese concretions; clear wavy boundary.

E/Btx 76-97 cm. Very pale brown (10YR 7/3) and grayish brown (10YR 5/2) silt loam, brown (10YR 5/3) and grayish brown (10YR 5/2) moist; strong medium and coarse angular blocky structure; very hard, firm, slightly sticky and slightly plastic; very strongly acid pH 4.7; common very fine, fine, and medium roots; few very fine and fine tubular pores; common thin clay films lining ped faces and pores; few fine manganese concretions; mottles c23d yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6); abrupt wavy boundary.

Bt1 97-114 cm. Pale brown (10YR 6/3) silt loam, brown to dark brown (10YR 4/3) moist; strong medium and coarse angular blocky structure; very hard, very firm, sticky and slightly plastic; very strongly acid pH 4.7; few very fine, common very fine and fine roots; common very fine and fine, few medium tubular pores; common thin clay films lining ped faces and pores, few moderately thick clay fims lining pores; few thin silt coats white (10YR 8/2); mottles few fine brown (10YR 5/3); clear wavy boundary.

Bt2 114-152 cm. Pale brown (10YR 6/3) silt loam, brown to dark brown (10YR 4/3) moist; strong medium and coarse angular blocky structure; very hard, very firm, sticky and slightly plastic; very strongly acid pH 4.7; few very fine, common very fine and fine roots; few very fine, fine, and medium tubular pores; common thin and moderately thick clay films lining ped faces and pores, few thick clay films lining ped faces and pores; few thin silt coats white (10YR 8/2); few very fine and fine manganese concretions; no gravels.

Pedon: Helmer Silt Loam 82-ID-0558 (82ID-009-2) Date: June 1984

Sample No.	Horizon	Depth	pH paste	EC*10^3	% Water at Saturation	Available P	Sesquioxides: Di-Citrate Extract Fe	Sesquioxides: Di-Citrate Extract Al	Sesquioxides: Pyrophosphate Extract Fe	Sesquioxides: Pyrophosphate Extract Al	Spodic
		cm		mmhos/cm		ppm	%				
	O1	5- 3	NS	NS	NS	NS	NS	NS	NS	NS	NS
	O2	3- 0	NS	NS	NS	NS	NS	NS	NS	NS	NS
1	A	0- 8	6.1	0.48	58	13.8	1.16	0.43	0.18	0.20	no
2	Bo	8- 36	6.4	0.40	58	9.6	1.37	0.32	0.06	0.13	no
3	Bw	36- 48	6.3	0.38	40	0.6	1.46	0.10	0.02	0.05	no
4	Bx/E	48- 76	5.1	0.26	36	0.9	1.61	0.09	0.03	0.06	no
5	E/Btx	76- 97	4.7	0.30	36	1.8	1.81	0.10	0.04	0.06	no
6	Bt1	97-114	4.7	0.18	40	1.5	1.85	0.11	0.04	0.07	no
7	Bt2	114-152	4.7	0.20	37	1.8	1.93	0.11	0.05	0.08	no

Sample No.	Exchangeable Ions: Ca	Mg	Na	K	Ext. Acidity: H	CEC	Base Saturation	OM	OC	N	C:N	Soil Fraction	NaF pH
	meq/100 gms						%	%			ratio		
	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1	11.2	1.0	0.6	1.6	12.6	21.4	53	2.49	1.45	0.091	16	1.00	10.0
2	10.5	0.8	0.6	1.0	10.8	22.7	54	1.56	0.91	0.064	14	1.00	10.1
3	6.1	1.0	0.6	0.6	5.1	10.2	62	0.56	0.33	0.072	5	1.00	8.9
4	5.2	1.0	0.6	0.3	5.9	9.0	55	0.29	0.17	0.025	7	1.00	8.0
5	4.4	1.5	0.7	0.2	8.3	11.5	45	0.35	0.20	0.030	7	1.00	8.0
6	5.2	1.8	0.7	0.2	9.3	13.6	46	0.33	0.19	0.032	6	1.00	8.0
7	6.1	2.5	0.5	0.2	8.3	14.3	53	0.29	0.17	0.034	5	1.00	7.9

Remarks: CEC's were leached with 19% acidified NaCl,
CEC's and nitrogens were run by steam distillation.
Extractable cations were run on the Jarrell Ash atomic absorption.
NS - no sample

Analysis by: Debbie Eisinger

Pedon: Helmer Silt Loam 82-ID-0558 (82ID-009-2) Date: May 1984

	Particle Size Distribution (mm)								Gravel & Stone		
Depth	VCS	CS	MS	FS	VFS	TS	TSi	TC	>2 mm		Textural
	2-1.0	1-0.5	0.5-0.25	0.25-0.1	0.1-0.05	2-0.05	0.05-0.002	<0.002	wt.	vol.	Classes
cm	%								%		
5- 3	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS
3- 0	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS
0- 8	2.81	2.37	1.19	2.48	6.29	15.14	70.89	13.97	none		Silt loam
8- 36	0.40	1.15	1.00	2.28	6.68	11.50	74.53	13.97	none		Silt loam
36- 48	0.58	1.21	0.96	2.27	6.20	11.22	74.11	14.68	none		Silt loam
48- 76	0.45	1.10	0.85	1.96	5.46	9.82	76.31	13.88	none		Silt loam
76- 97	1.04	1.48	1.00	1.40	4.47	9.39	73.14	17.47	none		Silt loam
97-114	1.71	1.57	0.88	1.47	4.41	10.04	67.33	22.62	none		Silt loam
114-152	0.52	1.64	1.02	1.67	4.24	9.09	68.65	22.26	none		Silt loam

	Silt Size Distribution (mm)					Water Content		Liquid	Plastic	Plastic
Depth	CoSi	Msi	Fsi	Bulk Density		1/3	15	Limit	Limit	Index
	0.05-0.02	0.02-0.005	0.005-0.002	Clod	Core	Bar	Bar			
cm	%			g/cc		%		%		
5- 3						NS	NS			
3- 0						NS	NS			
0- 8						43.9	29.3			
8- 36						46.7	27.0			
36- 48						29.3	18.6			
48- 76						26.1	17.4			
76- 97						26.7	18.9			
97-114						28.1	22.4			
114-152						28.4	21.4			

Remarks: Samples were run by the centrifuge method, 5% sodium hexametaphosphate added, sonified, and carbonates were not removed.
NS - no sample

Analysis by: Anita L. Falen